Cities
Available online 16 October 2017
http://www.sciencedirect.com/science/article/pii/S0264275117304833
doi: 10.1016/j.cities.2017.09.014

Lahore, Pakistan – Urbanization challenges and opportunities

Irfan Ahmad Rana, Saad Saleem Bhatti

Abstract

Lahore is the second largest metropolitan in Pakistan, and the capital city of Punjab province. The city hosts various historical monuments, buildings and gardens. Once a walled city during the Mughal era (1524-1752) and British colonial rule, the city has grown as a hub of commerce and trade in the region. The built-up area almost doubled during 1999-2011 and is expected to grow at a similar or even higher rate, hence increasing pressure on the city administration in terms of managing infrastructure and squatter settlements. Challenges such as lack of integrated urban development policies, unchecked urban growth, overlapping jurisdictions of land governing authorities and ineffective building control further aggravate the situation. Despite the recent positive developments like provision of improved commuting facilities through Metro and Orange Line transport systems, and restoration of walled city, Lahore still necessitates dynamic and structured institutions with technical, legal and regulatory support for managing the ever increasing population. Planners need to develop feasible, realistic and practical urban development plans, and ensure an integrated infrastructural and socioeconomic development in the city. Additionally, utilizing the underexploited potentials such as tourism and knowledge-driven businesses can help boost the economy and transform Lahore into a modern city.

Keywords: Integrated urban planning; Metro; Orange line; Technology hub; Urban development; Walled city.

1. Introduction

Lahore, known as the “cultural heart of Pakistan”, has a long history of more than 2,000 years. The city had been ruled by the Mughal Empire, and later came under the British Regime in Indian Sub-continent. After independence, Lahore city became part of the Islamic Republic of Pakistan, near the eastern border shared with India. The city exhibits a number of architectural buildings, mosques, churches, temples, tombs, parks and gardens which make it an attractive tourist destination. The city has grown manyfold and now comprises the walled city, and the adjacent urban and sub-urban areas mostly to the south and southeast. It is now a bustling metropolis offering numerous commercial and trade opportunities; the city is becoming a hub for the technology sector in the country. The city’s gross domestic product (GDP) by purchasing power parity (PPP) was estimated at $40 billion in 2008, with GDP growth rate projected at 5.6 percent for 2008-25 (PricewaterhouseCoopers, 2009). These developments, however, are instigating pressure on urban administrations for providing infrastructure facilities.

Pakistan is the 36th largest country in terms of area (around 881,913 sq. km), and is ranked as the sixth most populous country in the world (around 207.8 million people in 2017) (Pakistan Bureau of Statistics, 2017; The World Bank, 2017). Alongside population growth, the country faces an issue of rapid and unplanned urbanization since its independence in 1947 (primarily due to migration) which has seen a hike in the past decades (during the wars of 1965 and 1971 when Indian Muslims migrated from India to Pakistan, and migration of Afghans which began in the 1990s (Haider & Badami, 2010; Kugelman, 2013; Mustafa & Sawas, 2013). Migration, insecurity and economic necessity remain the main drivers of urbanization in the country. The population distribution in the country itself is unique; the largest province in terms of area (Balochistan) holds the smallest

proportion of people, while the second largest province Punjab is the most populous among all provinces (Pakistan Bureau of Statistics, 2017). Lahore, the capital city of Punjab is the second largest metropolis of the country in terms of population (around 11 million people) (Pakistan Bureau of Statistics, 2017). Figure 1 shows the locations of provinces and major cities in Pakistan, along with population distribution at district level.

This paper focuses on unveiling the challenges faced by the city administrations in enforcing urban development projects, building control and commercialization. It aims to speculate on future urban growth patterns and spatial restructuring, for controlled and sustainable development, by providing useful insights to policy makers.

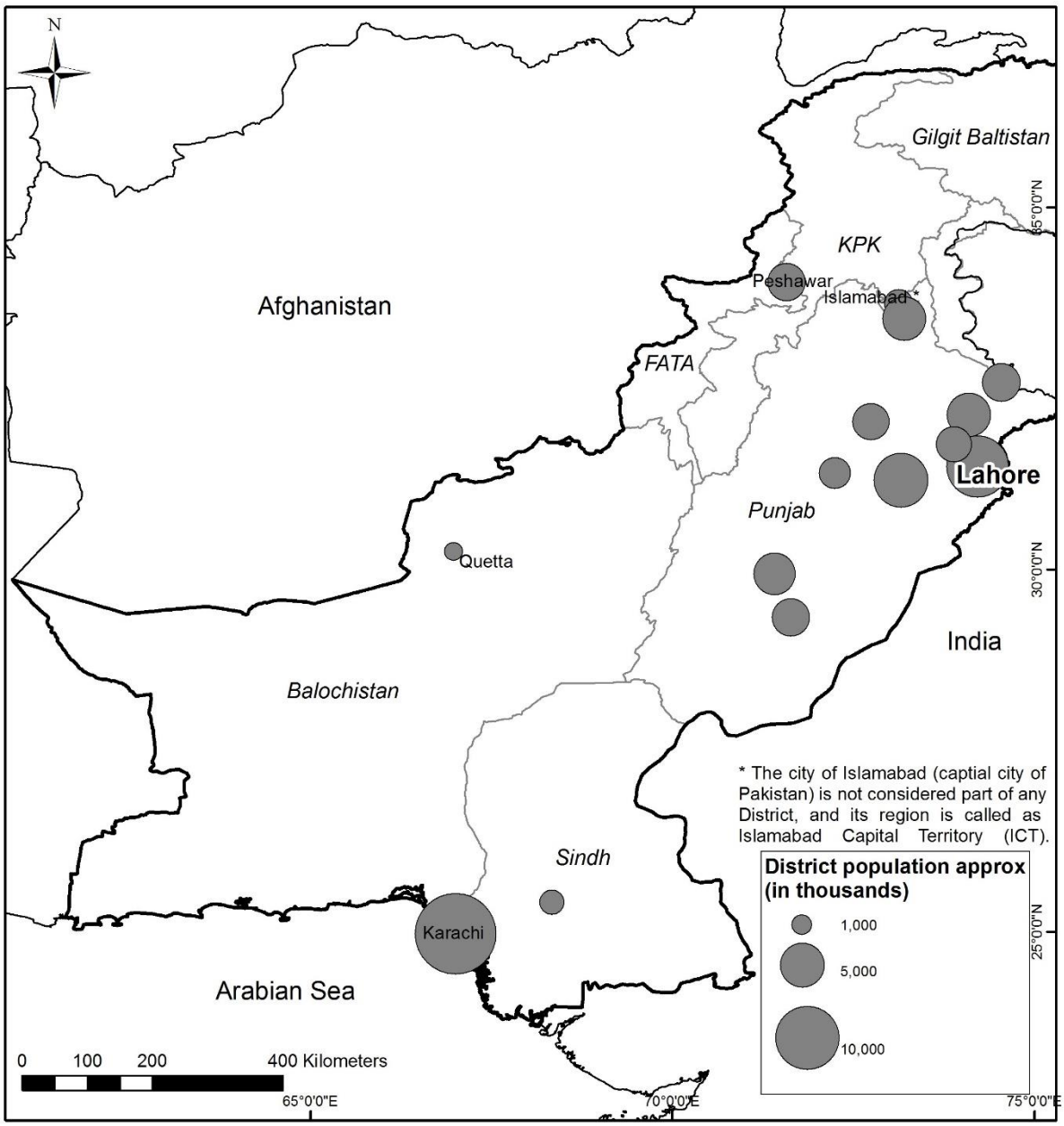

Figure 1. Population distribution (district level, Islamabad Capital Territory for Islamabad) in major cities of Pakistan.
Sources: (Balochistan Bureau of Statistics, 2014; Khyber Pakhtunkhwa Bureau of Statistics, 2014; Punjab Bureau of Statistics, 2014; Sindh Bureau of Statistics, 2013)

2. Basic information about Lahore

Situated to the northeast of Punjab near the border with India towards east, Lahore covers an area of around 1772 sq.km. with an average surface elevation of about 217 m above mean sea level characterized by a flat terrain. Administratively, the city is divided into 9 towns and a cantonment, and the towns are further sub-divided into 150 union councils[1] (UCs) where 122 are characterized as urban and the rest are peri-urban/rural (Punjab Bureau of Statistics, 2015). Figure 2(a) shows the locations of different towns of the city.

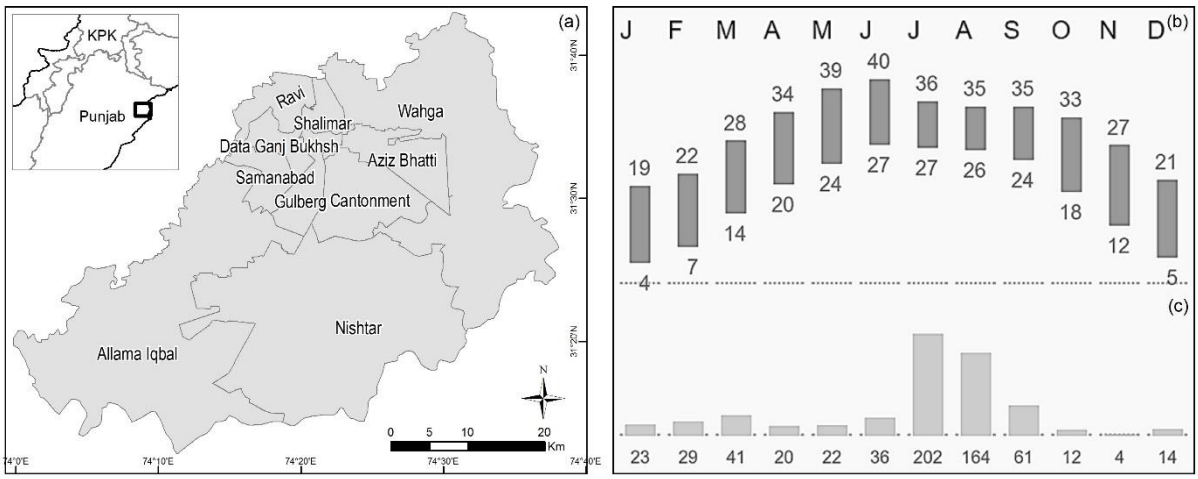

Figure 2. (a) Map of towns of Lahore, (b) average minimum and maximum temperatures (degrees centigrade), and (c) average monthly rainfall (mm) during different months of a year.
((b) and (c) reproduced from https://en.wikipedia.org/wiki/Lahore; accessed on: 8 May 2017)

The city touches extremes in terms of weather during both summers and winters (Figure 2(b)). Summer season persists from April to September, where May and June are the hottest months in which the maximum temperatures touches almost 48°C with average daytime temperature ranging between 40 and 48°C. Winter season continues from November to March. December and January are the coldest months during which temperatures sometimes fall as low as 0°C. Highest rainfall is observed during the monsoon months of July and August, while the city remains almost dry during the rest of the year (Figure 2(c)).

In terms of accessibility, the city is interconnected by a dense road network - the provincial highway department estimates around 1265 km of roads in the city (Punjab Bureau of Statistics, 2015). Around 4 million vehicles are registered with the city's Excise and Taxation Department. The main modes of public transport are the Metro bus service, vans, taxis and rickshaws. At present, there is no metropolitan rail network to facilitate local commuting (although the Orange Line rail-based project is under construction), however, the main railway station in Lahore provides access to other cities. The only commercial service airport in the city, Allama Iqbal International Airport, is the second largest civil airport in the country.

According to current figures, Lahore has 657, 219 and 327 government primary, middle and high schools[2], respectively (Punjab Bureau of Statistics, 2015). There are 47 government colleges that offer higher secondary education. These numbers are quite insufficient to fulfil the educational needs of such a high population. There are, however, several private schools and colleges as well but

[1] Union council is the smallest administrative unit in Pakistan.

[2] Primary school is an institution comprising first to fifth grades (I-V), middle school include first to eighth grades (I-VIII), and high school covers first to tenth grades (I-X) of educational system (Punjab Bureau of Statistics, 2015).

they are usually unaffordable to the average citizen owing to high fees structure as compared to the government institutes. Only 54 government hospitals, a handful of which are fully equipped, exist which clearly indicates the deficiency in availability of health facilities to the city with a population of around 9.5 million (population estimated in 2015; the current population according to 2017 census is around 11 million) (Pakistan Bureau of Statistics, 2017; Punjab Bureau of Statistics, 2015). Around 84 police stations, which are grouped into different security circles (zones), deal with the security-related issues of the locality (Punjab Bureau of Statistics, 2015). The city has experienced significant industrial growth over the past decades; around 2233 factories are registered with the government (Punjab Bureau of Statistics, 2015). It is regarded as one of the most developed in Punjab province, both in terms of infrastructure and socioeconomic development (Rana, Bhatti, & Arshad, 2017). A few variables describing the infrastructure and socioeconomic development status in Lahore are summarized in Table 1.

Table 1. Socioeconomic and infrastructure development situation in Lahore.

Indicator	**Percentage**
Households having house ownership	74.8
Households having access to improved water sources	96.3
Households having access to improved sanitation	97.3
Adult literacy rate (age 15+)	71.5
Employment rate	97.3
Households having access to electricity	99.5
Households having access to television	89.4
Households having access to gas as cooking fuel	85.3
Households having access to private transport	96.9

Source: (Punjab Bureau of Statistics, 2011)

2.1. Demography

Population in the city of Lahore has grown significantly during the past decades. According to the census reports, it increased from around 1.12 million in 1951 to 11 million in 2017 (Figure 3(a)) (Pakistan Bureau of Statistics, 1998, 2017). According to the 2016 population estimates, majority of the population (around 82%) resided in urban areas (Punjab Bureau of Statistics, 2016), which has interestingly been upped to 100% in the provisional report of 2017 census – whole Lahore district has been declared as an urbanized area (Pakistan Bureau of Statistics, 2017). Moreover, Figure 3(a) also indicates the discrepancy in population values estimated in 2016 (around 9.7 million) (Punjab Bureau of Statistics, 2016) compared to the ones obtained through the census conducted in 2017 (around 11 million) (Punjab Bureau of Statistics, 2016). In the absence of census for 19 years (1998-2017), the population values were computed using statistical projections, and planning was done based on these estimated values. The population growth graph hints at inappropriate population projections within this no-census period, which would have led to misinformed decision making.

Population density is estimated at around 6,300 persons/sq.km., which is comparable to some other big cities in the region such as Bangkok, Thailand (5,259), Riyadh, Saudi Arabia (4,400) and Bandung, Indonesia (2,325), (Central Department of Statistics and Information, 2011; National Statistical Office, 2010; Pakistan Bureau of Statistics, 2017; Tarigan et al., 2016). The average household size in the city is around 6.1, which is quite high compared to the cities of similar size (Punjab Bureau of Statistics, 2011). The population growth rate in the city indicates a decreasing trend. As shown in Figure 3(b), the average annual population growth rate reduced from around 4.1% between 1961 and 1972 to 3.0% during 1998 and 2017 (Pakistan Bureau of Statistics, 2017)

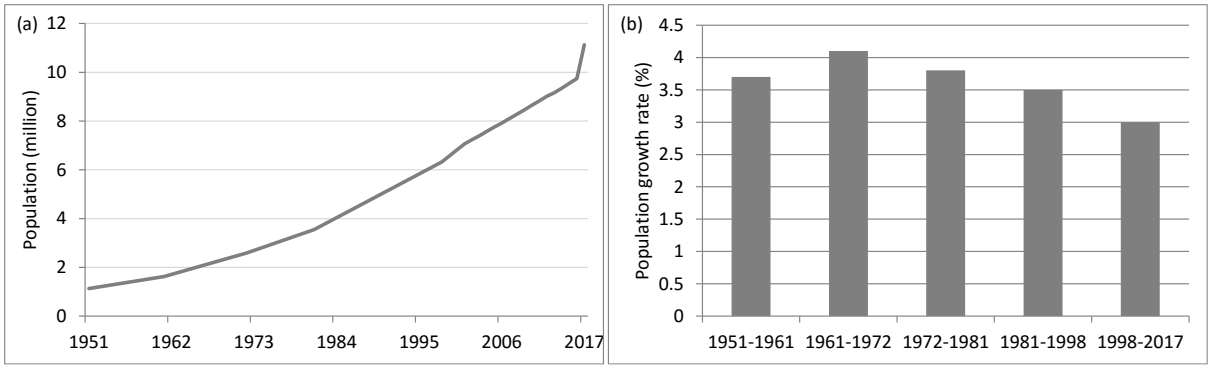

Figure 3. (a) Population growth from 1951 to 2017 and (b) average annual population growth rate from 1951 to 2017 in Lahore.
Source: (Pakistan Bureau of Statistics, 1998, 2017; Punjab Bureau of Statistics, 2016)

A declining population growth rate points out that it is not the only reason for urbanization; in-migration is a major cause of growth. According to the 1998 census data, around 16.4% (around 1 million) of the total population of the city (around 6.3 million in 1998) comprised migrated people (Pakistan Bureau of Statistics, 1998). The data also reveals that majority of the migrated people settled in the urban areas (around 86% of migrated population), indicating that the pressure on urban infrastructure in the city has increased during the past. The high influx of migrants has also led to growing number of slums and squatter settlements.

2.2. Administration

Lahore has been a prominent city, with the likes of presidency capital of British India such as Calcutta (now Kolkata) and Bombay (Mumbai). The most distinct reason for that was its role as an imperial capital within a regional urban network (Glover, 2008). Being walled all around, it secured the city from external threats and most of the trade passed through it, from Far East India towards Afghanistan and other landlocked regions. Under the Mughal rule, the city had been a hub for military gatherings; the Mughals constructed gardens and forts taking it to the heights of glory and grandeur. Numerous historians have, however, concluded that precolonial glory of olden Lahore had faded during the British rule. During the colonial rule, British tried to revamp it into a better and modern city. Most of the growth occurred towards southeast of the walled city, which focused on developing civil lines/station, housing, colleges, schools and gardens. An army cantonment plan was laid out that still echoes the garden city concept. Lahore's cantonment was described as a garden city built half a century ago during the time this concept became popular in England. (Groote, Jonge, Dekker, & Vries, 1989). A variety of housing infrastructure such as government quarters, officer's colonies, and administrative buildings were constructed, which are still being used by the government employees.

Since the independence of Pakistan in 1947, Lahore's development has been managed by municipal administrations and cantonments, and improvement trusts set up by the British. No town planning act was followed for improving the development at that time. It was not until 1960 when Municipal Administration Ordinance was passed that gave powers to the local councils for development. Due to ever-increasing housing demands, Lahore Improvement Trust (LIT) was set up in 1936 for designing, implementing and maintaining new housing schemes, with the primary goal to control haphazard growth and fulfil the housing needs in coming decades (Groote et al., 1989).

Later, the provincial government decided to augment the Tehsil Municipal Administrations (TMAs) with additional development authorities and after the approval of Development Cities Act of 1976, the LIT was reformed into Lahore Development Authority (LDA). LDA was assigned the responsibilities of urban development, provision of infrastructural facilities and maintenance, and

creation of comprehensive development plan for the city. Importantly, the TMAs could not intervene in the administrative affairs of areas under LDA's jurisdiction, and vice versa (Ahmad & Anjum, 2012). As a result of recently introduced Punjab Local Government Act, 2013, the TMAs are now called "Zones" (Government of Punjab, 2013). Some other major authorities governing development in Lahore are the Cantonment Board, Defence Housing Authority, Lahore Metropolitan Corporation (formerly City District Government of Lahore (CDGL)), Model Town Society, and Walled City Development Authority.

Among all these organizations, LDA develops comprehensive urban development plans for the entire city. Although a few master plans have been developed by LDA, none of those were fully implemented due to fragmented responsibilities, political influences, financial problems and lack of jurisdiction in areas controlled by other agencies (Hameed & Nadeem, 2006). Moreover, since there is no comprehensive urban planning law or regulation framework at national and/or regional level (Shah, Afridi, & Minallah, 2007), each of the aforementioned institutions develop and implement their own plans, according to their own agendas and laws/acts. There is no coordinated effort among the agencies to come up with an integrated development plan for the betterment of city and province as a whole. These issues have led to "perplexities" for implementation of urban development plans in Pakistan (Ahmad & Anjum, 2012). Lack of capable staff, building inspectors, civil engineers and urban planners in these agencies add further to the issues which result in sanction and construction of illegal buildings.

The city has been transformed in the recent years through urban renewal, heritage renovations and rigorous infrastructure development, albeit facing a number of challenges such as urban decay, soaring land prices, and inflation. Political instabilities, economic decline, poverty and water shortages have worsened the complex urban development processes. However, on a positive note, concentrated political strongholds and commercial investments can be used to improve the future of the city through proper planning and appropriate channelization of resources.

3. Urbanization in Lahore – the present and future

The history of planning and development in Lahore has been addressed in several studies in the past (Glover, 2008; Groote et al., 1989; Leonard, 1986). This section, however, highlights the present as well as the expected state of built-up area (considered as being reflective of urbanization) of the city in coming decades. Urbanization is a complex process driven by a variety of spatiotemporal components (Deng, Wang, Hong, & Qi, 2009; Seto & Fragkias, 2005). It is usually hard to interpret and quantify (Jaeger, Bertiller, Schwick, & Kienast, 2010), and results in an increase in urban and decrease in rural areas, while the land changes are governed by the myriad of choices like the suitability of location, policies and individual preferences (Irwin & Bockstael, 2004). Having a mix of urban, peri-urban and rural areas, the metropolitan regions exhibit spatial variations in the distribution and dynamics of urbanization.

In the absence of a comprehensive census since 1998 in Pakistan, the current population estimates normally rely on the population growth rates and other variables; however, these estimates might not be reflective of the actual situation. A recent study conducted by Bhatti, et al. (2015) examined the urbanization in Lahore through the built-up area using satellite remote sensing data for the time period between 1999 and 2011 (Bhatti, Tripathi, Nitivattananon, Rana, & Mozumder, 2015). The results indicated an increase in the built-up area towards the south and east of the city. The rise in population amplified the pressure on housing sector which resulted in the development of new, and extension of existing housing schemes in these areas. The built-up area almost doubled during this period (from around 25100 ha in 1999 to 39400 ha in 2011) mainly at the cost of agricultural, vegetation and bare areas.

Interestingly, the increase in built-up area during 1999 and 2011 in the outskirts of the city was significantly higher than that in the central urban areas (Bhatti et al., 2015). Around 84 % increase in the built-up area in the outer region as opposed to around 22 % of that in the central urban region implies rapid urbanization in the outskirts of the city. These urbanization dynamics indicate that the areas currently considered as peri-urban or rural would soon need to be categorized as urban, and would consequently require administrative changes accordingly.

In addition, the computer modeling and simulation results from this study indicate that the rate at which the different land use types are being converted is quite high, and this transition is happening in an uncontrolled manner (Bhatti et al., 2015). The future prediction results points to the possibility of urban expansion towards the south and east of the city by 2021 mainly at the cost of agricultural land; some extension in the built-up area is also expected to the west by 2035. The built-up area of the metropolitan is expected to rise from around 39400 ha in 2011 to 47200 ha in 2021 and 57600 ha in 2035. Preparation and implementation of appropriate land management strategies and policies is hence imperative to manage the built-up area growth. The recent infrastructure developments in the city (Metro bus system, Orange Line train system) would likely affect the future urbanization patterns, and it is important to examine and understand the local urban growth dynamics from time to time in order to make more informed decisions accordingly. In addition to examining the infrastructure development / built-up growth, it is also necessary to acquire and analyze the actual population statistics through a census survey – the detailed data from the recent 2017 census will greatly help in this regard.

4. Urban development plans, policies and governance

Pakistan lacks urban development policies at both provincial and national levels which leads to complexities at the local scale (Ahmad & Anjum, 2012). The Municipal Administrative Ordinance (1960) permits the preparation of development plans at local scale – under the Punjab Local Government Ordinance 2001 and Development Authorities Act 1976, the respective Development Authorities (DAs) and TMAs are designated to prepare action plans and programs for future development of the respective cities. Local administrations, district offices and related departments, thus, develop separate, and usually uncoordinated plans according to their individual needs to tackle urban growth. However, because of the absence of provincial and national vision for urban development, all the genuine efforts at local levels usually go in vain.

Several development plans (master plans) have been prepared for Lahore in the past. The Housing and Physical Planning Department, now called the Punjab Housing and Town Planning Agency, developed a Master Plan for Greater Lahore 1966 that focused on controlling haphazard development in the city (Hameed & Nadeem, 2006). It was the first of its kind, among the series of master plans/outline development plans (ODPs) for the cities in Punjab. The Lahore Urban Development and Traffic Study (LUDTS), funded and guided by the World Bank, was formed in 1980 which served as a guiding document for the LDA (Hameed & Nadeem, 2006). In 2001, an Integrated Master Plan for Lahore 2021 (IMPL) was developed that aimed at managing the growing Lahore metropolitan area (LDA & NESPAK, 2004). Recently, in July 2016, an amendment to the Master Plan for Lahore Division (CDGL Lahore, Kasur District, Sheikhupura District and Nankana Sahib District) has been approved that includes IMPL 2021, ODPs of surrounding districts and Agroville development plans, as envisioned by the Chief Metropolitan Wing and Strategic Policy Unit for the next 20 years, i.e. 2035 (HEMC Pak, 2015). However, amassing a huge area (total geographical area of Lahore Division is 11729 sq.km.) under one umbrella can be seen as more of a regional development strategy rather than an urban development plan, which brings more complexities and more area for building control.

Lahore city is governed by various local agencies that undertake a variety of responsibilities, from urban growth management to infrastructure development, and maintenance to creation of new towns. Some agencies also share overlapping or similar tasks in common areas of jurisdiction. For instance, boundaries between the administration areas of LDA and local TMAs have not been demarcated clearly, which often leads to confusion and chaos. Some settlements along these contested boundaries are left waiting to seek infrastructure facilities, while legal battles are taking place in the courts. The CDGL and Deputy Commissioner offices sometimes act as a mediator and supervisory authority while deciding between the LDA and TMA as the manager of major roads – the decision, however, is usually affected by political biases. For instance, the Ferozepur and Multan roads (primary roads connecting Lahore city with adjacent cities and districts) are often transferred back and forth between LDA and TMA. Even if an area is assigned to a particular agency for building control, a different agency might be administering some section of road in that area. At the same time, other agencies/boards, through special permissions, control a number of residential schemes such as Army Cantonment Board, Model Town Society, Walled City Development Authority, and Defense Housing Authority that are outside the jurisdiction of LDA/TMA. These multiple agencies, instead of strengthening, weaken the building control implementation owing to the overlapping responsibilities and administration areas. Moreover, the cumbersome approval process of building plans somewhat propels illegal construction – stay orders from lower courts and political influences add further pressure on unchecked growth in the city. However, LDA has initiated One Window Operation to smoothen and ease process for building plan approval for public, and to effectively tackle growth of illegal and sub-standard constructions.

Commercialization is another much debated and politically motivated phenomenon in Lahore. Properties along main roads are often restricted to commercial use, and are heavily taxed. Illegal commercialization has seeped into residential neighborhoods in several areas of the city making civic life miserable. (Figure 4a) (Nadeem & Hameed, 2005). Moreover, a strict control and ample fine collection on illegal construction/extension/encroachment is missing. In an attempt to increase revenue, the government allowed commercialization along several major roads that are being constructed under new projects (Lahore Development Authority, 2009). In 2015 alone, 3.09 billion PKR (approx. 29.4736 million USD based on currency exchange rate of 1 PKR = 0.00953834 USD on 8 May 2017) were collected on account of commercialization fee, including 2.80 billion PKR as permanent commercialization fee and 285 million PKR against annual/temporary commercialization fee (Janjua, 2015). However, only penalty challans, with little follow up, are issued to the owners of illegally commercialized properties. Recently, huge and modern shopping malls have sprung up in the city (Figure 4(b)).

Due to acute shortage of government-funded affordable housing, the private sector jumped on the opportunity to develop a number of housing schemes in Lahore (Hameed, Nadeem, & Anjum, 2016). To regularize the private housing boom, Punjab Private Housing Schemes and Land Sub-division Rules 2010 were introduced, which forced the developers to seek permission from respective development authority/TMA. These regulations were introduced to ensure the development of essential and appropriate infrastructural services. Prior to such regulations, the developers just bought the land, subdivided it into smaller plots, and then sold them to the public without necessary development works (Rana & Zubair, 2010). However, ineffective implementation and unclear planning standards have overshadowed existence of such rules. (Nadeem, Hameed, & Asim, 2015). Recently, the task of approving private housing schemes has been entrusted to LDA. Deputy Director Metropolitan Wing of LDA (personal communication, Feb 2017) apprised us that 244 approved housing schemes, at present, are under the jurisdiction of LDA, whereas 132 approved schemes are being transferred from other TMAs. The LDA has a total 287 housing schemes, 43 of which are designed and developed by the Authority itself. Besides, 257 schemes have been classified as illegal by the authority of Lahore Division. (Mahfooz, 2017)

Figure 4. (a) Traditional shops constructed illegally, and (b) Emporium, a newly constructed modern shopping mall in Lahore.
Photographs taken on: 30th August, 2017 and 28th August, 2017 respectively

On a different note, the issues of terrorism, extremism and secular violence in Pakistan during recent past have forced the government to reframe its development plans. Lahore is one of the several cities in the country that have been the target of extremists – the city has witnessed a number of suicide attacks, rampant gun firing and mob assaults. For ensuring the safety of the citizens, Punjab Safe Authority Act 2016 was initiated and as a result, 8000 surveillance cameras and Integrated Command, Control and Communication Centre costing 12 billion PKR were set up. It is planned to spread this project in the near future and cover other 6 major cities of Punjab by 2017 (Dawn, 2016a; Government of Punjab, 2016).

Climate change is another significant challenge faced by Pakistan where the majority of disaster risk management is still reactive in nature, especially in the urban areas (Rana & Routray, 2016). Pakistan has officially ratified Paris Agreement, and a bill named as Pakistan Climate Change Act 2017 has been promulgated by the National Embassy. This act will force the local authorities to formulate strategies and plans for climate-compatible and disaster-resilient development (Ministry of Climate Change, 2017). Lahore itself has no official local climate resilience or adaptation plan as of yet, but there are plans to accommodate both climate change and disaster management components in future development plans of the city. The inclusion of strategies to deal with regional terrorism and climate change in the development policies is quite promising – such refinements would very likely enhance the element of sustainability in the ongoing and future development plans.

5. Development projects – current state of affairs

Local transport is one of the sectors that was not appropriately addressed during past decades – millions of commuters in Lahore relied on travelling through worn out buses, vans and rickshaws. However, a couple of mega projects for public transport are envisioned and recently in early 2013, a Metro Bus Service (Rapid Bus Transit) was launched with the cost of 30 billion PKR for a 27km route (Figure 5(a)). Using a fleet of 45 buses, almost 140,000 commuters use this service daily on weekdays, which generates an annual revenue of around 912.5 million PKR. (I. Alam, 2014). Under the newly formed Punjab Metro Authority, an extension of similar bus service was later seen in other major cities of Punjab province. Punjab mass transit authority ordinance 2015 was also promulgated to provide legal backing (Government of Punjab, 2015). Another bold initiative by the provincial government was to launch semi-elevated railway transit (Figure 5(b)). With an estimated cost of 165 Billion PKR, the construction of the first route named as Orange Line has already started in the city. A route of almost 27km is planned out of which 25.4 km will be elevated (The Express Tribune, 2014b).

Figure 5. (a) Metro bus station showing rapid bus transit system, and (b) an elevated railway track for upcoming Orange Line for train in Lahore.
Photographs taken on: 13th July, 2017 and 30th August, 2017 respectively

Lahore exhibits several monuments and gardens of historical significance from the Mughal era (Figure 6). Walled city has been exclusively discussed in literature (Groote et al., 1989; Leonard, 1986). The Walled City of Lahore Authority (WCLA) recently initiated some ambitious renovation and conservation projects for a major makeover (BBC, 2017). The Authority has started the battle to restore the splendor of ancient city (Burke, 2013); the World Bank funded around 22 million British Pounds for the restoration of intricately decorated historic public baths, street paving, underground sewerage and gas lines, encroachment removal, and infrastructure development (Zaidi, 2013). The Authority also introduced tour services and photo walks in the walled city to attract foreign tourist, and according to the figures provided by WCLA, around 51,647 tourists, including 2,350 foreigners, visited several parts of the Lahore Walled City in 2015 (Dawn, 2016b).

Figure 6. (a) Chauburji monument, with Orange Line train construction the background, and (b) Shalimar gardens constructed during the Mughal era.
Photographs taken on: 29th August, 2017 and 30th August, 2017 respectively

6. Key challenges and initiatives

Like other countries, politics play a pivotal role in influencing urban development and governance in the cities of Pakistan. Owing to the political instability in the country (since its independence in 1947, only quite recently did a civilian government handed political leadership to next civilian leader), the continuity in exercising the development plans and strategies has been greatly hindered. Moreover, since no comprehensive urban development plans or rules exist at the national level (Ahmad and Anjum, 2012), the provincial government is the key stakeholder for determining urban and regional growth strategies. The province of Punjab has been governed by one of the leading political parties of Pakistan, Pakistan Muslim League (Nawaz) (PML (N)), during recent years. Lahore is considered as the hub of political activities of PML (N) where it dominates majority of the city's political circles. A number of development plans in the province, especially in the city of Lahore, have seen a good level of continuity because of the dominance of the same ruling party over the past years. However, in this context, Lahore is often called upon as using more resources than other cities of Punjab, primarily due to favouritism and show-off by the ruling party.

Lack of conduct of census in Pakistan since 1998 is another issue attributed to political instability in the country and recent wave of terrorism in the region. All planning activities in Punjab are carried out based on the population estimated by the Punjab Bureau of Statistics. These estimates have been heavily criticized by several experts as being non-reflective of the actual population. However, the continuum of civilian governments in the recent years enabled to overcome this issue, and the recent government was able to conduct a census in 2017. It can hence be envisaged that this positive development would enable the development of realistic plans and policies in the future.

Lahore is highly developed in terms of infrastructure (Rana, Bhatti, & e Saqib, 2017), but still faces innumerable challenges as 'large-ticket' infrastructure ventures remains unconnected and are being developed without a greater plan or policy (A. R. Alam, 2017). Although best developed compared to other major cities of the province in terms of provision of improved water resources to the households (Rana, Bhatti, & e Saqib, 2017), Lahore has no appropriate waste water treatment facilities –domestic and industrial waste is unceremoniously dumped into rivers and canals which subsequently contaminates the water aquifers (A. R. Alam, 2017). The city also requires special attention with regards to the provision of improved sanitation facilities (Rana, Bhatti, & e Saqib, 2017).

The preceding discussion points out several key challenges relating to urban planning and governance in Lahore:

- An absence of integrated and consolidated administration with clear roles and responsibilities, jurisdiction boundaries, and focused vision for urban growth makes the city governance quite challenging.
- Lack of strict implementation of building regulations, which is imperative for controlled growth towards envisioned future, is a great issue. Unrestricted commercialization and development of slums must be checked.

Nevertheless, keeping in view the constraints in Pakistan such as soaring population, energy crisis, terrorism and political instabilities, local administrations in Lahore have been quite successful at delivering infrastructure services (Rana, Bhatti, & e Saqib, 2017) – enlisted below are a few of these:

- Initiatives towards improving public transport system (Metro, Orange Line) have been taken, and it is just a matter of time till they reach their full potential to counteract the dilemma of present chaotic public transport system and traffic congestion.
- Government of Punjab, with budget of more than 1 billion USD, is currently working on opening a Knowledge Park in Lahore to attract international universities to set up their

campuses (Mughal, 2016). Such developments are in a way directing the city's focus towards knowledge-driven economy and businesses, thus shifting from the traditional industry-based economy.

- Although debates on the smart city concept bring up challenges in the Asia-Pacific region like unreliable internet connectivity, weak cyber security, lack of information and databases, some local experts believe that Lahore is the closest to being a smart city in Pakistan (The Express Tribune, 2014a).

On a different yet interrelated note, only one university in the province of Punjab was offering higher education in urban planning in the past; however, five more universities across Pakistan have recently started this professional degree program which indicates the recognition of urban planning experts as being crucial to plans for improved and sustainable development.

7. A way forward

There is still a long way to solve administrative and governance issues in Lahore. This study highlighted the questions that require immediate attention for effective management of urbanization. Devolution and changes in local government systems have caused chaos and mismanagement due to unclear and overlapping responsibilities and jurisdictions. This multiplicity of local institutions exists not only in Lahore, but also at provincial and national level, and which is hampering sustainable urban and regional development in Pakistan (Ahmad & Anjum, 2012). Master plans have been unable to restrict unplanned urbanization that is still happening due to ever increasing demand for housing and commercialization. Bold initiatives are therefore needed to develop systematic, dynamic, and structured institutions with technical, legal and regulatory support. It is important to develop appropriate urban planning regulations and development plans, and to implement them effectively. Moreover, institutions need to take measures to tackle rapid urbanization through integrated socioeconomic and infrastructure development initiatives. These outcomes can help the policy makers, urban planners and local institutions to come up with balanced and sustainable urban development strategies.

References

Ahmad, N., & Anjum, G. A. (2012). Legal and institutional perplexities hampering the implementation of urban development plans in Pakistan. *Cities*, *29*(4), 271–277. https://doi.org/10.1016/j.cities.2011.07.006

Alam, A. R. (2017, March 10). Failure of urban planning. *The Express Tribune*. Retrieved from https://tribune.com.pk/story/850425/failure-of-urban-planning/

Alam, I. (2014, January 23). Is Metro Bus a success story? *The Nation*. Retrieved from http://nation.com.pk/lahore/23-Jan-2014/is-metro-bus-a-success-story

Balochistan Bureau of Statistics. (2014). *Development Statistics of Balochistan 2013-2014*. Quetta. Retrieved from http://www.balochistan.gov.pk/

BBC. (2017). *Walled City of Lahore gets makeover*. BBC. Retrieved from http://www.bbc.com/news/av/world-asia-24177480/walled-city-of-lahore-gets-makeover

Bhatti, S. S., Tripathi, N. K., Nitivattananon, V., Rana, I. A., & Mozumder, C. (2015). A multi-scale modeling approach for simulating urbanization in a metropolitan region. *Habitat International*, *50*, 354–365. https://doi.org/10.1016/j.habitatint.2015.09.005

Burke, J. (2013, May 26). Lahore authorities battle to restore splendour of ancient Walled City. *The Guardian*. Retrieved from https://www.theguardian.com/world/2013/may/26/lahore-walled-city-pakistan

Central Department of Statistics and Information. (2011). *Statistical Yearbook (2011)*. Riyadh.

Dawn. (2016a). Punjab Safe City Project inaugurated. Retrieved July 26, 2017, from https://www.dawn.com/news/1289650

Dawn. (2016b, January 2). Ten-fold increase in foreign tourists for Lahore Walled City. *Dawn Newspaper*. Retrieved from https://www.dawn.com/news/1230220

Deng, J. S., Wang, K., Hong, Y., & Qi, J. G. (2009). Spatio-temporal dynamics and evolution of land use change and landscape pattern in response to rapid urbanization. *Landscape and Urban Planning*, *92*(3–4), 187–198. https://doi.org/10.1016/j.landurbplan.2009.05.001

Glover, W. J. (2008). *Making Lahore Modern: Constructing and Imagining a Colonial City*. Minnesota: University of Minnesota Press. https://doi.org/10.1525/jsah.2013.72.3.411

Government of Punjab. (2013). Punjab Local Government Act 2013. Lahore: Government of Punjab.

Government of Punjab. (2015). *The Punjab Masstransit Authority Ordinance 2015*. Lahore.

Government of Punjab. (2016). The Punjab Safe Cities Authority Act 2016. Lahore: Government of Punjab. Retrieved from http://punjablaws.gov.pk/laws/2619.html#_ftn1

Groote, P., Jonge, R. De, Dekker, J., & Vries, J. De. (1989). *Urban planning in Lahore A confrontation with real development*. University of Groningen, Netherlands, Groningen.

Haider, M., & Badami, M. G. (2010). Urbanization and Local Governance Challenges in Pakistan. *Environment and Urbanization Asia*, *1*(1), 81–96. https://doi.org/10.1177/097542530900100107

Hameed, R., & Nadeem, O. (2006). Challenges of implementing urban master plans: the lahore experience. *Proc. of World Academy of Science Engineering and Technology*, *17*, 335–342. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.307.7582&rep=rep1&type=pdf

Hameed, R., Nadeem, O., & Anjum, G. (2016). Role of Private Sector in Providing Affordable Housing in Lahore. *University of Engineering and Technology Taxila. Technical Journal*, *21*(4), 8.

HEMC Pak. (2015). *Amendment in Master Plan for Lahore Division: Environment Impact Assessment Report*. Lahore. Retrieved from http://epd.punjab.gov.pk/system/files/Final Report v5 all complete.pdf

Irwin, E. G., & Bockstael, N. E. (2004). Land use externalities, open space preservation, and urban sprawl. *Regional Science and Urban Economics*, *34*(6), 705–725. https://doi.org/10.1016/j.regsciurbeco.2004.03.002

Jaeger, J. A. G., Bertiller, R., Schwick, C., & Kienast, F. (2010). Suitability criteria for measures of urban sprawl. *Ecological Indicators*, *10*(2), 397–406. https://doi.org/10.1016/j.ecolind.2009.07.007

Janjua, M. S. (2015, December 31). Striving for a developed Lahore. *The Nation*. Retrieved from http://nation.com.pk/business/03-Jan-2016/striving-for-a-developed-lahore

Khyber Pakhtunkhwa Bureau of Statistics. (2014). *Development Statistics of Khyber Pakthunkhwa*. Peshawer. Retrieved from http://kpbos.gov.pk/development-statistics.php

Kugelman, M. (2013). *Urbanisation in Pakistan: causes and consequences*. *NOREF Norwegian Peacebuilding Resource Centre*. Washington DC.

Lahore Development Authority. (2009). *Lists of LDA Roads/Segments of Roads Allowed/Disallowed for Commercial Use*. Lahore: Lahore Development Authority. Retrieved from https://www.lda.gop.pk/downloads.php

LDA, & NESPAK. (2004). *LDA Integrated Master Plan Lahore 2021*. Lahore.

Leonard, J. B. (1986). Lahore. *Cities*, *3*(1), 12–23. https://doi.org/10.1016/0264-2751(86)90003-X

Mahfooz, S. (2017). Personal Interview. Lahore.

Ministry of Climate Change. (2017). Pakistan Climate Change Act, 2017. Islamabad: Government of Pakistan.

Mughal, S. (2016). A billion dollar project, Lahore Knowledge Park, to produce 11,200 PhDs. Retrieved February 24, 2017, from https://www.techjuice.pk/a-billion-dollar-project-lahore-knowledge-park-to-produce-11200-phds/

Mustafa, D., & Sawas, A. (2013). Urbanisation and Political Change in Pakistan: exploring the known unknowns. *Third World Quarterly*, *34*(7), 1293–1304. https://doi.org/10.1080/01436597.2013.824657

Nadeem, O., & Hameed, R. (2005). Haphazard commercialization: A potential threat to sustainable commercial development in metropolitan cities? The case of Lahore. *Proc. Int. Conf. on Environmentally*. Retrieved from http://www.academia.edu/download/33191944/haphazard-commercialization-in-lahore-obaidullah-nadeem1.pdf

Nadeem, O., Hameed, R., & Asim, M. (2015). Regulating private housing schemes in Punjab, Pakistan: practical implications and remedies. *Pakistan Journal of Science*.

National Statistical Office. (2010). *Executive Summary: The 2010 Population and Housing Census*. Bangkok. Retrieved from www.popcensus.nso.go.th/upload/census-report-6-4-54-en.pdf

Pakistan Bureau of Statistics. (1998). *Census Report of Pakistan 1998*. Islamabad. Retrieved from http://www.pbs.gov.pk/population-tables

Pakistan Bureau of Statistics. (2017). *Provisional Summary Results of 6th Population and Housng Census 2017*. Islamabad. Retrieved from http://www.pbscensus.gov.pk/

PricewaterhouseCoopers. (2009). *Global city GDP rankings 2008–2025*. London.

Punjab Bureau of Statistics. (2011). *Multiple Indicator Cluster Survey 2011*. Lahore. Retrieved from http://www.bos.gop.pk/publicationreports

Punjab Bureau of Statistics. (2014). *Punjab Development Statistics 2014*. Lahore. Retrieved from http://www.bos.gop.pk/publicationreports

Punjab Bureau of Statistics. (2015). *Punjab Development Statistics 2015*. Lahore. Retrieved from http://www.bos.gop.pk/publicationreports

Punjab Bureau of Statistics. (2016). *Punjab Development Statistics*. Lahore. Retrieved from http://www.bos.gop.pk/publicationreports

Rana, I. A., Bhatti, S. S., & Arshad, H. S. H. (2017). Assessing the socioeconomic and infrastructure development disparity – a case study of city districts of Punjab, Pakistan. *International Journal of Urban Sustainable Development*, *0*(0), 1–13. https://doi.org/10.1080/19463138.2017.1320286

Rana, I. A., Bhatti, S. S., & e Saqib, S. (2017). The spatial and temporal dynamics of infrastructure development disparity – From assessment to analyses. *Cities*, *63*, 20–32. https://doi.org/10.1016/j.cities.2016.12.020

Rana, I. A., & Routray, J. K. (2016). Actual vis-à-vis perceived risk of flood prone urban communities in Pakistan. *International Journal of Disaster Risk Reduction*, *19*(August), 366–378. https://doi.org/10.1016/j.ijdrr.2016.08.028

Rana, I. A., & Zubair, M. (2010). *Ensuring provision of infrastructural services in approved private housing schemes of Lahore*. Thesis. University of Engineering and Technology, Lahore.

Seto, K. C., & Fragkias, M. (2005). Quantifying spatiotemporal patterns of urban land-use change in four cities of China with time series landscape metrics. *Landscape Ecology*, *20*(7), 871–888. https://doi.org/10.1007/s10980-005-5238-8

Shah, S., Afridi, & Minallah. (2007). *Assessment of institutional arrangement for urban land development and management in five large cities of Punjab*. Lahore. Retrieved from http://www.urbanunit.gov.pk/PublicationDocs/28.pdf

Sindh Bureau of Statistics. (2013). *Development Statistics of Sindh*. Karachi. Retrieved from http://sindhbos.gov.pk/development-statistics/

Tarigan, A. K. M., Sagala, S., Samsura, D. A. A., Fiisabiilillah, D. F., Simarmata, H. A., & Nababan, M. (2016). Bandung City, Indonesia. *Cities*, *50*, 100–110. https://doi.org/10.1016/j.cities.2015.09.005

The Express Tribune. (2014a, April 13). Urban planning: "Lahore closest in Pakistan being a smart city." *The Express Tribune*. Retrieved from http://tribune.com.pk/story/694853/urban-planning-lahore-closest-in-pakistan-being-a-smart-city/

The Express Tribune. (2014b, May 23). Good news on track: Lahore to get Pakistan's first metro train. *The Express Tribune*. Retrieved from https://tribune.com.pk/story/711864/good-news-on-track-lahore-to-get-pakistans-first-metro-train/

The World Bank. (2017). Pakistan. Retrieved April 27, 2017, from http://data.worldbank.org/country/pakistan

Zaidi, A. (2013). In Lahore, Improving Livelihoods and Preserving Heritage Go Hand in Hand. Retrieved April 29, 2017, from http://www.worldbank.org/en/news/feature/2013/10/28/in-lahore-improving-livelihoods-and-preserving-heritage-go-hand-in-hand